

Amendments to the Specification:

Please amend the specification as follows. Applicant submits that the amendments made to the specification were made to correct typographical errors and that no new matter has been added to the specification.

On page 19, please amend the paragraph beginning on line 8 to read as follows:

In Figure 1a, an embodiment of an FSO business transaction processing system 10 may include a ~~computer~~-system 20 (e.g., computer system), a display screen 40 connected to the ~~computer~~-system, and one or more databases 52 residing on external storage. ~~Computer-s~~System 20 includes memory 30 configured to store computer programs for execution on ~~computer~~ system 20, and a central processing unit (not shown) configured to execute instructions of computer programs residing on ~~computer~~-system 20. Business transaction processing program 50 may be stored in memory 20. System 10 may also include one or more input devices 42 such as a keyboard for entering data and commands into program 50 and one or more cursor control devices 44 such as a mouse.

On page 20, please amend the paragraph beginning on line 9 to read as follows:

Figure 2 illustrates one embodiment of a system for processing FSO business data using hardcoded key definitions and key construction. The system using hardcoded key definitions may include a transaction processing program 300 and a PCD program 306. The system may also include a PCD table C 320 and a database 310. Database 310 may include customer account master files.

On page 20, please amend the paragraph beginning on line 15 to read as follows:

Transaction processing program 300 may receive a business product transaction 302 for processing. Transaction processing program 300 may require a PCD value from PCD table C 320 for processing business product transaction 302. Transaction processing program 300 may include build processing key value program instructions 308 for building a processing key value for locating a PCD value in PCD table C 320. ~~P~~Build processing key value program instructions 308 may include one or more program instructions that specify a ~~PCD-hard coded~~ key definition 314 for PCD value C. The program instructions may include instructions for locating one or more data elements in business product transaction 302 and database 310. In this example, the program instructions have embedded references to data elements x and y. Data element x is located in business product transaction 302, and data element y is located in database 310. The values stored in the located data elements may be copied into one or more key elements in processing key value 316. Processing key value 316 may be stored in program memory in transaction processing program 300.

On page 21, please amend the paragraph beginning on line 1 to read as follows:

After the processing key value 316 is constructed in build process key value program instructions 308, transaction processing program may send a request 304 to PCD program 306. Request value from PDC C 304 may include information on which PCD table is to be searched. Request value from PDC C 304 may also include a processing key value to be searched for. In this example, request value from PDC C 304 includes information specifying that PCD table C 320 is to be searched, and includes processing key value 316. PCD program 306 receives request value from PDC C 304 and locates the requested PCD table 320. PCD program 306 may include program instructions 318 that are configured to search PCD table C 320 for a key value. The search of PCD table C 320 may include comparing processing key value 316 with a first key value in PCD table C 320. If processing key value 316 does not match the key value, the search

may continue with the next key value in PCD table C 320. The search may continue until a key value in PCD table C 320 is found that matches processing key value 316, or until all of the key values in PCD table C 320 have been compared to processing key value 316 without finding a match.

On page 21, please amend the paragraph beginning on line 21 to read as follows:

If a matching key value for processing key value 316 is not found, PCD program 306 may notify transaction processing program 300 that a match for processing key value 316 was not found. ~~P~~Build process key value program instructions 308 may include one or more program instructions for creating an alternate processing key value (not shown) for PCD value C. The alternate processing key value may include alternate values for one or more of the key elements. The alternate processing key value may be sent to PCD program 306 in a ~~new-request~~ value from PDC C 304, and the searching of PCD table C 320 as described above may be repeated with the alternate processing key value.

On page 22, please amend the paragraph beginning on line 23 to read as follows:

Transaction processing program 500 may receive a business product transaction 502 for processing. Transaction processing program 500 may require a PCD value from PCD table C 526 for processing business product transaction 502. Transaction processing program may send a request value from PCD 504 to key building program 506. Request value from PCD 504 may include information identifying the PCD table that transaction processing program 500 requires a PCD value from. In this example, transaction processing program is requesting a PCD value from PCD table C.

On page 23, please amend the paragraph beginning on line 1 to read as follows:

Key building program 506 may include build key value program instructions 514 for building a key value. P Build key value program instructions 514 may receive the PCD table name from request value from PCD 504. In this example, the PCD table name is PCD table C. P Build key value program instructions 514 may search PCD key definition table 508 for a PCD key definition for PCD table C. PCD key definition 510 may be read from PCD key definition table 508 in response to finding the entry in the table for PCD table C. In this example, key definition 510 for PCD table C includes data elements x and y. Data element x is located in business product transaction 502, and data element y is located in database 518.

On page 23, please amend the paragraph beginning on line 11 to read as follows:

P Build key value program instructions 514 may access search mask table 522 for PCD table C in database 520. In one embodiment of a search mask table, the search masks in the search mask table may be arranged in an order from first to last, wherein the search masks are read in order from first to last by a key building program until a match for a processing key value is located. After locating search mask table 522, build key value program instructions 514 may read a first search mask 524 from search mask table 522. In one embodiment of search mask tables, each row of the search mask includes one search mask, and each search mask includes one field for each key element in the key definition associated with the search mask table. In one embodiment, wildcard mask field values and equal mask field values may be entered as mask values in search mask fields. In one embodiment, an equal mask field value in a search mask field may specify that, when constructing or preparing a processing key value from the data element values in a customer account data set during processing of the customer account data set, the key element value in the processing key value corresponding to the mask field will be set to the data element value from the customer account data set. In one embodiment, a wildcard mask field value in a mask field may specify that, when constructing a processing key value from the data element values in a customer account data set during processing of the customer account

data set, the key element value in the processing key value corresponding to the mask field will be set to the low collating value for the data type of the key element. For example, key elements of numeric data type may use zero (0) as a low collating value, and character fields may use spaces, or blank characters, as low collating values. Other key element types may have low collating values specific to the type. In the embodiment illustrated in Figure 3a, an equal mask field value is represented by an equal sign (“=”), and a wildcard mask field value is represented by an asterisk (“*”). In this example, search mask 524 includes one search mask field for each data element in key definition 510, where the search mask fields for data elements x and y are set to equal mask field values.

On page 24, please amend the paragraph beginning on line 10 to read as follows:

P Build key value program instructions 514 may use key definition 510 and search mask 524 to build a first key value 528 from data element values read from database 518 and business product transaction 502. P Build key value program instructions 514 may use the data elements in key definition 510 to read the data element values from the data elements. In this example, the value read from data element x in transaction 502 is 1, and the value read from data element y in database 518 is 8. P Build key value program instructions 514 may use search mask 524 to copy the data elements into processing key value 528. In this example, both search mask values in search mask 524 are equal search mask values, so the data element values may be copied directly into the key elements of processing key value 528. Processing key value 528 may be passed to PCD program 512. Information indicating which PCD table to search may also be passed to PCD program 512.

On page 24, please amend the paragraph beginning on line 22 to read as follows:

PCD program 512 may include key value search program instructions 516 configured for searching PCD tables and matching processing key values to PCD key values. In this example, the PCD table name is PCD table C. In one embodiment, key value search program instructions 516 may search PCD key definition table 508 for a PCD key definition for PCD table C. PCD key definition 510 may be read from PCD key definition table 508 in response to finding the entry in the table for PCD table C. In this example, key definition 510 for PCD table C includes data elements x and y. Data elements may include information on the format of data element values, such as the data type and length of the data. In one embodiment, key value search program instructions 516 may use the data format information of the data elements in a key definition during the comparison of a processing key values to one or more PCD table key values. In another embodiment, key value search program instructions 516 may compare a processing key value directly to a PCD table key value without using the formatting information from data elements in a key definition.

On page 25, please amend the paragraph beginning on line 7 to read as follows:

In one embodiment, key value search program instructions 516 may use information received from key building program 506 to locate PCD table C 526 in database 520. ~~P~~ Key value search program instructions 516 may include instructions for searching the key value fields of a PCD table for a key value that matches a processing key value. In one embodiment, two key values match if they include the same key elements in the same order, and if the key element values in the first key value are the same as the key element values in the second key value for all of the key elements in the key element values. In the example shown in Figure 3a, processing key value 528 includes the key element values [1, 8]. ~~P~~ Key value search program instructions 516 may compare processing key value 528 to each of the key values in PCD table C 526. In this example, PCD table C 526 does not include a key value that matches processing key value 528.

PCD program 512 may notify key building program 506 that no matching key value was found in PCD table C 526.

On page 26, please amend the paragraph beginning on line 6 to read as follows:

Figure 3b illustrates one embodiment of building a second processing key value and searching for a match to the second processing key value after no matching key value is found for a first processing key value in a PCD table. In Figure 3a, PCD program 512 may notify key building program 506 that no match was found for processing key value 528 in PCD table C 526. Referring to Figure 3b, key building program 506 may include build key value program instructions 514 for building a key value. PBuild key value program instructions 514 may use key definition 510 and a second search mask 530 read from search mask table 522 to build a second key value 532 from data element values read from database 518 and business product transaction 502. PBuild key value program instructions 514 may use the data elements in key definition 510 to read the data element values from the data elements. In this example, the value read from data element x in business product transaction 502 is 1. PBuild key value program instructions 514 may use search mask 530 to copy the data elements into processing key value 532. In this example, the first search mask field value in search mask 530 is an equal search mask value, and therefore the data element value for data element x may be copied into the first key element of processing key value 532. The second search mask field value in this example is a wildcard search mask value, and therefore the wildcard value for the data type of data element y may be copied into the second key element of processing key value 532. After processing key value 532 is built by build key value program instructions 514, processing key value 532 may be passed to PCD program 512. Information indicating which PCD table to search may also be passed to PCD program 512.

On page 26, please amend the paragraph beginning on line 27 to read as follows:

PCD program 512 may include key search value program instructions 516 configured for searching PCD tables and matching processing key values to PCD key values. In this example, the PCD table name is PCD table C. In one embodiment, key search value program instructions 516 may use information received from key building program 506 to locate PCD table C 526 in database 520. ~~P~~ Key search value program instructions 516 may include instructions for searching the key value fields of a PCD table for a key value that matches a processing key value. In the example shown in Figure 3b, processing key value 532 includes the key element values [1, *], where “*” represents the wildcard, or low collating, value for the data element y in key definition 510. ~~P~~ Key search value program instructions 516 may compare processing key value 532 to each of the key values in PCD table C 526. In this example, the search of PCD table C 526 finds a matching key value [1, *] in a row of the PCD table. ~~P~~ Key search value program instructions 516 may read PCD value 534 from the row of the PCD table where the matching key value was found. PCD program 512 may then send PCD value 534 to transaction processing program 500.

On page 28, please amend the paragraph beginning on line 27 to read as follows:

Figure 5 illustrates an embodiment of a PCD table 170 from a database used in an FSO system, with rows including key values 174 and ~~processing parameter~~ PCD values 178 associated with the key values. A PCD table may be used to store key values and the processing, or PCD, values associated with the key values. The key values and processing parameter values may be entered by a user of the FSO system. In one embodiment, a PCD table may include pre-defined key values and processing parameter values, and the user of the FSO system may add key values and processing parameter values to the PCD table.

On page 35, please amend the paragraph beginning on line 8 to read as follows:

Figure 9 illustrates one embodiment of a PCD table for storing key values and associated PCD data values defined by a user of the FSO system using a process as illustrated in Figure 5. Referring to Figure 9, PCD table 210 may include cells 216 for storing user-defined key values 217 in one column 212 and cells 218 for storing user-defined PCD data values 219 in a second column 214. One row in the table may include one cell 216 for storing a user-defined key value 217 and one cell 218 for storing the user-defined PCD data value 219 associated with the key value. In this example, user-defined key values (1, 2, ... , n) correlate to user-defined processing parameter values (1, 2, ..., n). A user-defined key value 217 may include one or more key value fields. A user-defined PCD data value 219 may include one or more processing parameter values.

On page 35, please amend the paragraph beginning on line 21 to read as follows:

Figure 10 illustrates one embodiment of a plurality of PCD tables 210 in an FSO system database. PCD tables 210 may include cells 216 for storing user-defined key values 217 in one column 212 and cells 218 for storing user-defined PCD data values 219 in a second column 214. One row in each table may include one cell 216 for storing a user-defined key value 217 and one cell 218 for storing the user-defined PCD data value 219 associated with the key value. In this example, in PCD table 1, key values (1, 2, ... , n) correlate to processing parameters (1, 2, ..., n). A user-defined key value 217 may include one or more key value fields. A user-defined PCD data value 219 may include one or more processing parameter values.

On page 37, please amend the paragraph beginning on line 1 to read as follows:

In search 1, the PCD table search process uses key definition 150 and the first search mask in search mask table 180 to construct processing key values 193 for a first customer

account data set. In the first search mask, all mask values are set to the equal mask field value. A first processing key value is constructed using the first search mask. Key element X is set to the value 12 read from the customer account data set, key element W is set to the value DIS read from the customer account data set, and key element Z is set to the value Y read from the customer account data set. PCD table 170 is searched for the key value (12, DIS, Y). The key value for the second row in PCD table 170 (as reflected by the numeral 2 in PCD Table Row column 194) matches the first processing key value. The search is completed when the match is found, and the corresponding ~~processing parameter~~ transaction charge 195 (or other processing parameter), in this case a value of 8, is returned to the requesting process in the FSO system.

On page 37, please amend the paragraph beginning on line 13 to read as follows:

In search 2, the PCD table search process uses key definition 150 and the first search mask in search mask table 180 to construct processing key values 193 for a second customer account data set. A first processing key value is constructed using the first search mask. Key element X is set to the value 12 read from the customer account data set, key element W is set to the value MSC read from the customer account data set, and key element Z is set to the value Y read from the customer account data set. PCD table 170 is searched for the key value (12, MSC, Y). No exact match for the key value is found in PCD table 170. A second processing key value is constructed using the second search mask. Key element X is set to the value 12 read from the customer account data set, key element W is set to the wildcard key element value, and key element Z is set to the value Y read from the customer account data set. PCD table 170 is searched for the key value (12, *, Y). The key value for the fourth row in PCD table 170 (as reflected by the numeral 4 in PCD Table Row column 194) matches the second processing key value. The search is completed when the match is found, and the corresponding ~~processing parameter~~ transaction charge 195, 13, is returned to the requesting process in the FSO system.

On page 38, please amend the paragraph beginning on line 13 to read as follows:

In search 3, the PCD table search process uses key definition 150 and the first search mask in search mask table 180 to construct processing key values 193 for a third customer account data set. A first processing key value is constructed using the first search mask. Key element X is set to the value 12 read from the customer account data set, key element W is set to the value MSC read from the customer account data set, and key element Z is set to the value N read from the customer account data set. PCD table 170 is searched for the key value (12, MSC, N). No exact match for the key value is found in PCD table 170. A second processing key value is constructed using the second search mask. Key element X is set to the value 12 read from the customer account data set, key element W is set to the wildcard key element value, and key element Z is set to the value N read from the customer account data set. PCD table 170 is searched for the key value (12, *, N). Again, no exact match for the key value is found in PCD table 170. A third processing key value is constructed using the third search mask. Key element X is set to the value 12 read from the customer account data set, key element W is set to the wildcard key element value, and key element Z is set to the wildcard key element value. PCD table 170 is searched for the key value (12, *, *). The key value for the third row in PCD table 170 matches the third processing key value. The search is completed when the match is found, and the corresponding ~~processing parameter~~ transaction charge 195, 12, is returned to the requesting process in the FSO system.

On page 38, please amend the paragraph beginning on line 21 to read as follows:

In search 4, the PCD table search process uses key definition 150 and the first search mask in search mask table 180 to construct processing key values 193 for a fourth customer account data set. A first processing key value is constructed using the first search mask. Key element X is set to the value 14 read from the customer account data set, key element W is set to

the value MSC read from the customer account data set, and key element Z is set to the value N read from the customer account data set. PCD table 170 is searched for the key value (14, MSC, N). No exact match for the key value is found in PCD table 170. A second processing key value is constructed using the second search mask. Key element X is set to the value 14 read from the customer account data set, key element W is set to the wildcard key element value, and key element Z is set to the value N read from the customer account data set. PCD table 170 is searched for the key value (14, *, N). Again, no exact match for the key value is found in PCD table 170. A third processing key value is constructed using the third search mask. Key element X is set to the value 14 read from the customer account data set, key element W is set to the wildcard key element value, and key element Z is set to the wildcard key element value. PCD table 170 is searched for the key value (14, *, *). Again, no exact match for the key value is found in PCD table 170. A fourth processing key value is constructed using the fourth search mask. Key element X is set to the wildcard key element value, key element W is set to the wildcard key element value, and key element Z is set to the wildcard key element value. PCD table 170 is searched for the key value (*, *, *). The key value for the seventh row in PCD table 170 is set to all wildcard values, and thus matches the fourth processing key value. The search is completed when the match is found, and the corresponding ~~processing parameter~~transaction charge 195, 14, is returned to the requesting process in the FSO system.

On page 42, please amend the paragraph beginning on line 20 to read as follows:

In step 414, if no matching key value was found for the processing key value in the PCD table, the search process may continue with step 416. In step 416, the search mask table is examined to see if there is another search mask. If there is another search mask, the process may go to the next search mask table row in step 418 and repeats steps 410, 412, and -414. If there are no more rows in the search mask table, the business transaction processing program that

requested the PCD value in step 402 of Figure 12a may be notified that no PCD value has been found for the transaction.

On page 42, please amend the paragraph beginning on line 28 to read as follows:

If a matching key value is found for the processing key value in the PCD table in the processing loop described by steps 410, 412, 414, 416, and -418, the processing loop may exit from step 414 to step 422. In step 422, the PCD value associated with the matched key value from the PCD table may be returned to the business transaction processing program that requested the PCD value for the transaction in step 402.

On page 43, please amend the paragraph beginning on line 8 to read as follows:

Figure 13 is a flow diagram illustrating one embodiment of a process for building a processing key value from data element values using a search mask. Figure 13 is a detailed flow diagram expanding on step 410 from Figure 12b. Referring to Figure 13, a ~~first~~ data element may be read from the key definition in step 500. In step ~~504~~2, a search mask field value may be read from the search mask field corresponding to the data element in the key definition. In step 502, the search mask field value may be examined. If the search mask field value is an equal search mask field value, the processing key ~~element~~-field value corresponding to the current data element may be set to a data element value in step ~~506~~4. The data element value may be read from transaction data or a database in the FSO system using location and formatting information from the data element. If the search mask field value is a wildcard search mask field value (therefore, not an equal search mask field value), the processing key ~~element~~-field value corresponding to the current data element may be set to a low collating value for the data type of the data element in step ~~508~~6. After the search mask field value has been set, step ~~508-510~~ may check to see if there are more data elements in the ~~data~~-key definition. If there are more data

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Inventors: Steven Doughty
Atty. Dkt. No.: 5053-31301

elements in the ~~data~~-key definition, processing may return to step 500. Another data element may be read from the key definition.